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AIR AND CLIMATE.

BY ALEXANDER OTT.

In Russia great climatic changes have been gradually produced by the drainage of large tracts of marshy land and the hewing down of forests. Peter the Great, the founder of St. Petersburg, did everything that lay in his power to prepare the unhealthy banks of the Neva, which is in reality only a portion of the Ladoga lake, for a site to build up a large and magnificent city. Prince Potemkin, the renowned premier, the Empress Catherine, but especially Nicholas and his son Alexander II, have done a great deal for the physical and climatic improvement of that country.

In Italy, especially in the Romagna or the Papal dominions, the earliest rulers of Rome like Numa Pompilius, Lucius Tarquinius, Lucius Publicola, etc., had the marshy country transformed into a flourishing tract of land, by the establishment of large and extensive canals, by the filling up of swampy, boggy places and the enactment of strict laws in accordance to which everything filthy and unclean had to be removed. It is well known, however, that through neglect and constant internal and external feuds, the improvements commenced by a few good and wise kings of Rome, were entirely destroyed by their base, cruel and imbecile successors.

The mephitic vapors arising from the Pontinian swamps cause the so-called malaria, a fever which is almost as much feared by the inhabitants of the eternal city as the cholera in India. Yet, if we can credit the accounts of the early historians of the classical ages, the sickly climate of the Romagna had much improved, and hopes were even entertained of an entire removal of the miasmatic poison. Even at the present time under the pontificate of Pío Nono, one of the best men that ever wore the Papal mitre, that beautiful province is entirely neglected, the people having become more and more debased in the course of time, have turned brigands en masse. Thus one of the finest countries in the world, is for miles nothing but a reservoir of mephitic vapors.

In Holland where the climate and physical condition is naturally not so favorable, and the country is often liable to inundation by rains and the sea, the iron will of the people has created a fine, flourishing country with very little sickness. The inhabitants generally are healthy and robust. Asthma or a difficulty of breathing arising from a non-development of the thorax or chest, and which tends to pulmonary consumption (*phthisis pulmonalis*) is of rare occurrence. Dams and dykes have been built in every direction, and almost every piece of ground has been made available for some useful purpose. The air is moist, but bracing and healthy, and the people are generally of a so-called plethoric or sanguine constitution, that is to say, they possess a body in which the activity of the circulatory system prevails, with a frame full and stalwart, and a peculiar buoyancy and elasticity of spirit.

In Amsterdam, a place which is almost entirely built on piles in the water, very few people die in the average of consumption, while in the eastern states of our Union, but especially in the large cities, that fatal malady carries off thousands and becomes in many families hereditary. At the time that the Romans held possession of Holland, or Batavia as it was then called by the foreign invaders, that country was represented as a vast, dreary morass intersected by small strips of land, where the effeminate Roman soldiers died by hundreds.

If we recollect that the immense ocean of gaseous matter which envelops our planet, is more or less depending upon exhalations arising in the shape of vapors or elastic fluids;—that further, every tender plant through the process of respiration or breathing, imparts its quantum of aromatic or offensive air to the atmosphere; that all the animal creation expels carbon; that all animal and vegetable matter in which life is extinct, undergoes the process of oxidation that, in fine, vapors are constantly rising from rivers, lakes oceans and even from the land, through the medium of solar heat, it is evident from the above facts, that the local condition of the air is governed, to a certain extent, by the peculiar effluvia arising from the ground.

The height of the atmosphere, although variously estimated, extends, according to the greatest scientific authorities, to one hundred miles from the earth. Its rarity increases with the distance from our planet. The lowest strata of air are generally the densest, and the highest the thinnest. The computation of its height is however a very relative or uncertain one, as various meteorological causes in different altitudes conspire to disturb frequently the atmospheric equilibrium; suffice it to say, the densities of the air decrease in a geometrical, as the distances increase in an arithmetical ratio. From computations based on barometrical observations at different altitudes, the density of the air at a distance of seven miles from the earth, is only one-fourth.

The air is of vital importance for the animal and vegetable kingdom, not only as a life-sustaining medium, by bringing the respiratory organs in action, but also, by imparting in its elementary parts essential aid to the existence and beauty of plants. Carbon, or more correctly expressed, carbonic acid, is one of the component elements of the air. It is true, its quantity is small, but nevertheless by the All-wise Creator, it is so nicely and so sufficiently generated, that one of the most interesting and remarkable phenomena is quietly taking place, without attracting the attention of but

a few enquiring minds, viz, the coloring of leaves.

The plants are constantly supplied with carbon, which, when connected with the green leaves, is immediately, by the acid of the solar light, decomposed, the oxygen is expelled and the carbon remains.

By way of parenthesis, I will mention here, that quite recently the discovery has been made by M. Herve Mangon, in Brussels, in Belgium, that the electric light obtained from a magnetic-electric machine, has the property of developing the green coloring matter of plants.

Without dwelling upon the most common properties of the air, such as materialism, elasticity, fluidity, etc., things which are well known to almost every one of a most common education, I mention here, that it is a very important agent or medium of propagating sound. Experiments show that in places which are entirely exhausted by means of the air-pump, vibrations cannot be received from sounding bodies, and be conveyed to the auricular nerve. In what way and direction waves of sound are propagated through space comes within the province of acoustics.

The peculiar expansibility of the air, that is to say, the extraordinary tendency of the pneumatic fluid to spread itself through the immensity of space, and fill up thin layers or strata of atmosphere, when assisted by the solar light or the heat emanating from the rays thereof, causes the phenomena of winds. As remarked in the previous article, in the torrid zone exists a uniformity and regularity of climate entirely unknown in the moderation, hence we find the winds in the latter portion of the globe variable and uncertain, which circumstance often baffles the calculations of meteorological observers, while in the tropics these phenomena can be foreseen with the greatest certainty, as for instance the trade-winds which are constantly blowing in the equatorial regions. The rainy season in India, generally called the monsoon, is commonly reckoned to include four months, viz: June, July, August and September. It comes from the south-west, and the clouds pour down the accumulated stores they have been gathering for some months over the Indian Ocean. The approach is indicated in the latter part of May by the atmosphere becoming hazy and moist, by large banks of watery-looking clouds in the afternoon, and by white fleecy clouds resting on the hills and mountains for some hours in the morning. These phenomena are so sure indications of its approach that people accustomed to observe them, are seldom overtaken by surprise.

Air and climate being thus some of the principal media of animal and vegetable life, and the source of all meteorological and many other phenomena, it may be well to mention, that on account of the always direct rays of the sun in the tropics, the so-called zone or belt of the earth, becomes more heated than any other part of the surface, hence the warm state of the atmosphere and of the soil day and night adds, when assisted by sufficient moisture, force and vigor to the ordinary productive powers of nature. Vegetation springs up with a degree of rapidity and grows with a luxuriance quite unknown in temperate climates.

The climate exercises not only physical influence, but also a moral or psychological one, that is to say, the mental disposition or temperament is, to a great extent, governed by a somatic or bodily constitution, a fact well known to all who are familiar with the history of different nations.

*Batavia, now the name of the capital of the island of Java, in the Indian Ocean, is one of the most important colonial naval-stations of the Dutch government.

†The year in India is commonly divided into the rainy and fair seasons, or into the south-west monsoon and the north-east monsoon.

Politeness.

There is nothing more difficult to maintain, or necessary to possess than perfect good breeding, which is equally inconsistent with a stiff formality, an impertinent forwardness, an awkward bashfulness. A little ceremony is sometimes necessary; a certain degree of firmness is absolutely so, and an awkward modesty is extremely unbecoming. In mixed companies, whoever is admitted to take part in them, is, for the time at least, supposed to be upon a footing of equality with the rest, and, consequently, every one claims, and very justly, every mark of civility and good-breeding. Ease is allowed, but carelessness and negligence are strictly forbidden. There is nothing so little forgiven as seeming inattention to the person who is speaking to you. We have seen many people, who, while you are speaking to them, instead of looking at and attending to you, fix their eyes upon the ceiling or some other part of the room, look out at the window, lift a book or newspaper, and read it. Nothing discovers a little, futile, frivolous mind more than this, and nothing is so offensively ill-bred. Be sure that the profoundest learning, without good breeding, is unwelcome and tiresome pedantry. A man who is not well bred is unfit for good society, and is unwelcome in it. Make, then, good breeding the great object of your thoughts and actions. Observe carefully the behavior and manner of those who are distinguished by their good breeding. Imitate and endeavor to excel, that you may at least equal them. Observe how it adorns merit and how often it covers the want of it.

THE RAGGED SOLDIER.

A TALE OF THE REVOLUTION.

Just at the close of the revolutionary war, there was seen somewhere in one of the small towns of Central Massachusetts a ragged and forlorn looking soldier coming up the dusty street. He looked about on the cornfields tasseling for the harvest, on the rich, bright patches of wheat for the sickle, and on the green potato field, with curious eyes; so at least thought Mr. Towne, who walked leisurely behind him, going from reaping to his supper.

The latter was a stout farmer, dressed in home-made brown linen trousers, without suspenders, vest or coat. The ragged soldier stopped under the shade of a great sugar maple, and Mr. Towne, overtaking him, stopped also.

"Home from the wars?" he asked. "I am just out of the British clutches," replied the man. "I've been a prisoner for years." He rejoined suddenly, "Can you tell me who lives in the next house? Is it yours?" "No," replied Towne, "Tompkins lives there. That house and lot used to belong to a comrade of yours, I suppose; his name was Jones, but he was shot at Bunker Hill, and his young widow married again."

The soldier leaned against a tree. "What kind of a man is he? I mean what kind of people are they? Would they be likely to let a poor soldier have something to eat?"

"If Tompkins is out you'll be treated first-rate there. Mrs. Tompkins is a nice woman, but he is the sharpest cur that ever knawed a bone. He is a terrible surly neighbor, and he leads her a dog's life. She missed it in marrying the fellow; but you see she had a hard time of it with the farm after Jones went off soldiering; and when my son came back and said he was dead—he saw him bleeding to death on the battle field—she broke right down, and this Tompkins came along and got into work for her, and he laid himself out to do first rate.

"He somehow got on the blind side of all of us, and, when he offered himself to her, I advised her to have him, and I am sorry I did it. You had better come home with me. I always have a bite for a poor fellow that's fought for his country."

"Thank you," kindly returned the soldier, "but Mrs. Tompkins is a distant—a sort of old acquaintance. The fact is, I used to know her first husband, and I guess I will call there."

Mr. Towne watched him as he went up to the door and knocked, and saw that he was admitted by M. S. Tompkins.

"Some sweet-art of hers, may be," said Mr. Towne, nodding to himself;—"he comes too late. Poor woman, she has a hard row to hoe now."

Then Mr. Towne went home to supper, and we will go on with the soldier.

"Could you give a poor soldier a mouthful to eat?" he asked of the pale nervous woman who opened the door for him.

"My husband does not allow me to give anything to travelers," she said, "but I always feel for the soldiers coming back, and I'll give you some supper, if you won't be long eating it;" and she wiped her eyes with her white and blue checkered apron, and set about with alacrity providing refreshments for the poor man who had thrown himself into the nearest chair, and with his head leaning on his breast, appeared too tired to remove his hat from his face.

"I am glad to have you eat, and I would not hurry you for anything," she said in a frightened way, "but you will eat quick, won't you? I expect he will be in, every moment."

The man drew his chair to the table, keeping his hat on his head, as though he belonged to the Society of Friends; but that could not be, for the Friends do not go to war. He ate heartily of the bread and butter and cold meat—and how long he was about it.

Mrs. Tompkins fidgeted.

"Dear me," said she to herself, "if he only knew, he would not be so cruel as to let Tompkins come in and catch him."

She went and looked from the window, uneasily, but the soldier gave no token of his meal coming to an end.

"Now he is pouring vinegar on the cold cabbage and potatoes. Oh! dear, how slow he is. Hasn't the man any teeth?"

At last she said mildly, "I am very sorry to hurry you, but couldn't you let me spread some bread and butter, and cut some slices of meat to take away with you? My husband will use abusive language to you, if he finds you here."

Before the soldier could reply, footsteps were heard on the door stone at the back door, and a man entered. He stopped short, and looked at the soldier as a savage dog might look. Then he broke out in a tone between a growl and a roar:

"Hey day, Molly; a pretty piece of business. What have I told you, time and again, madam? You'll find you had better mind your master. And you, you lazy, thieving vagabond, let me see you clear out of my house and off my land a good deal quicker than you came on the premises."

"Your house! your land!" exclaimed the soldier, starting suddenly up, erect and tall, and dashing off his hat with a quick, fiery gesture. His eyes flashed like lightning, and his lips quivered with indignation, as he confronted the astonished Tompkins. The latter was afraid of him; and his wife had given a sudden nervous shriek when the soldier first started to his feet and flung off his hat, and

had fallen trembling and half fainting in a chair, for she had recognized him.

"You hain't any business to interfere between me and my wife," said Tompkins sulkily cowed by the attitude of the soldier.

"Your wife!" exclaimed the soldier, with the very concentration of contempt expressed in his voice.

"Who are you?" asked Tompkins, with an air of effrontery.

"I am Harry Jones, since you ask," replied the soldier, "the owner of this land, which you will leave this very hour. As for Molly," softening his tone as he turned to the woman, now sobbing hysterically, "she shall choose between us."

"Oh, Harry!" said she, while Tompkins stood dumb with astonishment, "take me—save me!"

With one step he was at her side, holding her in his arms.

"What did you mean by treating this poor child so? Did you do this because she had no earthly protector—did you think that there was not a God in Heaven against you? No man who is cruel to a woman is ever truly brave," and Tompkins slunk away like a beaten spaniel.

The next day had not passed away before everybody in the town knew that Harry Jones had come, alive and well, to rescue his much enduring patient wife from a worse constraint than that of a British prison; but what they all said, and what Harry said, and what Molly said, and what Molly felt, I must leave you to imagine, for here the legend ends.

The Roll of Butter.

In Old England lived an industrious and economical grocer, who had commenced on small means; but by strict attention to his business, he succeeded in establishing a considerable sized shop, and many were his customers. But in this world are foxes who make it their business to watch the more honest, to carry off whatever fortune, as they call it, may throw in their way.

One of this kind chanced to be in the vicinity of this honest man's establishment, "seeking what he might devour," when the old man had occasion to go to the rear of his building to get the shutters of his shop. Seeing his chance he made for the shop and entering, he hesitated for a second what he might "appropriate," and fearing the old man would return before he had accomplished his object, he seized on a roll of butter that lay near him on the counter, and not having a more suitable place for its concealment, he put it in his "stove pipe" hat; but the old grocer being too sharp for him, "twigged" the concealment; but, Wellington-like, he was cool as a cucumber under trying circumstances, and being very fond of a good joke, he was determined to make the thief pay for his propensity, as well as the entertainment he was about to give him. Accordingly, he beckoned him to stay a moment, and, after locking up, he desired him to come into his sitting-room, telling him that he wished to have a "private chat" with him as he was an old acquaintance.

After some hesitation he complied, fearing he might be suspected, and he followed the old man in, who, on entering, bade the good lady to make a warm fire as the night was somewhat cold, and requested his friend to draw his chair close up to the fire, as he did so himself.

After conversing some time on old matters and old times, Jack-Sharp became very uneasy from the effect of the butter having softened and now beginning to trickle down his cheeks. His handkerchief was applied often in wiping away what might be supposed to be sweat, but in reality it was the "butter," and it might be guessed he was earning his butter, (if not his bread), by the sweat of his brow.

At last the old man exclaimed "Bless me, you are sweating—sweating profusely. Really, I forgot to ask you to take off your hat." At this instant he snatched off our friend's hat; when, thunder and Mars! the butter had spread all over his head in a white cake. What! what! you have had the misfortune to loose your hair, eh! No! what! butter?"

At this moment the thief began to realize that he himself had been sold to pay for the roll of butter, and, as quick as thought, darted for the door, leaving his new "stove pipe" in the hands of the shop-keeper, who had commenced a series of volcanic-like convulsions, that might be termed "heartly laughing."

The thief ran, after he had left the house, a long way, not having had time to meditate which way he was going, but when he did find time, he discovered he was quite "Used Up," and vowed he'd never be guilty of earning his bread and butter in such a way again. It is presumed he kept his word.

BLASTING ROCKS UNDER WATER.—The common mode of blasting rock under water is that of sinking canisters of powder upon the reef or rock, which canisters are connected by wires with an electric battery located at a safe distance away, either upon a boat or on the shore and the powder is exploded by a current of electricity. In shallow streams only a small amount of force exerted by this method of blasting under water; but at a considerable depth, the downward pressure of the water acts like a lever to make the powder exert its force downward, and violently split the rock asunder. We are indebted to Professor Mallet for the introduction of this mode of blasting rocks in the United States.